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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,178	04/24/2006	Akira Okubo	061063-0317066	8571
909 7590 05/12/2009 PILSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102				
EXAMINER MOORE, WHITNEY				
ART UNIT 4148		PAPER NUMBER		
MAIL DATE 05/12/2009		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/544,178

**Applicant(s)**

OKUBO ET AL.

**Examiner**

WHITNEY MOORE

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-10 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 24 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8500)  
Paper No(s)/Mail Date 20060424, 20070406, 20080908  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

This office acknowledges receipt of the following items from the applicant: Information Disclosure Statements (IDS) filed on 24 April 2006, 06 April 2007, and 08 September 2008. The references cited on the IDS forms have been considered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 2, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Fumiko et al. (FUMIKO, Japanese Patent Application Publication 06-096712)**

Referring to Claim 1, FUMIKO teaches in Fig. 1-7, an inspection method comprising steps of: irradiating ions upon the surface of the inspection region of material, imaging a surface image of secondary particles, etching the inspection region, imaging a surface imaging a surface image successively with secondary particles, and measuring said conductive material within material. [0029-0032]

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Referring to Claim 2, FUMIKO teaches wherein the surface is etched with an ion beam, and imaged at the same time. [0029-0032]

Referring to Claim 7, FUMIKO teaches the three dimensional distribution of said conductive material is analyzed from accumulated said surface images. [0029-0032]

Referring to Claim 8, FUMIKO teaches in Fig. 1-7, a stage upon which the sample is mounted, and ion source, a beam control device, a secondary electron detector, a control system which controls the ion source and beam control device, an imaging system and an analyzing device. [0029-0054]

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 5. Claims 3-6 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over FUMIKO in view of Sakaguchi et al. (Sakaguchi) in (US 2002/0022348 A1).**

Referring to Claim 3, FUMIKO teaches the inspection method of a sample, but does not teach the specific type of sample.

However, Sakaguchi teaches in Fig. 2A-C, a SOI wafer used as the sample, where the base material is an embedded silicon oxide layer and conductive material is a defect.

Therefore it would have been obvious to one of ordinary skill in the art to modify FUMIKO by using the SOI wafer as taught by Sakaguchi, with the motivation that the

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use of the SOI structure allows the element separation process to be simplified as compared to bulk Si. [0013]

Referring to Claim 4, FUMIKO teaches the inspection method of a sample, but does not teach the specific type of sample and how it is manufactured.

However, Sakaguchi teaches in Fig. 9A-C the process of the formation of a SOI wafer manufactured by SIMOX technology.

Therefore it would have been obvious to one of ordinary skill in the art to modify FUMIKO by using the SOI wafer manufactured by SIMOX as taught by Sakaguchi, with the motivation to provide an SOI substrate excellent in the quality of a buried oxide layer. [0026]

Referring to Claim 5, FUMIKO teaches a method of manufacturing a sample for cross section observation (piece for analysis) and that any of said conductive material within said base material is specified based upon said surface image so that the analysis region is formed including at least a portion of thin film of the specified conductive material. But FUMIKO does not teach the aspect of depth direction.

However, Sakaguchi teaches in Fig. 2A-C the manufacturing method of a SOI wafer by SIMOX technology.

Therefore it would have been obvious to one of ordinary skill in the art to modify FUMIKO by using a SOI wafer manufactured by SIMOX technology as taught by Sakaguchi, with the motivation that SIMOX SOI wafer can be inspected without heat treatment to observe defects. [0057]

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Referring to Claim 6, FUMIKO teaches in Fig. 1-7, the observation of said conductive material included in said piece for analysis, the state of said conductive material is analyzed. [0007-0010]

Referring to Claim 9, Fumiko teaches an analysis method for analyzing said conductive material or its three dimensional distribution, but does not teach the manufacturing method for a SOI wafer.

However, Sakaguchi teaches in Fig. 2A-C, a manufacturing method of an SOI wafer.

Therefore it would have been obvious to one of ordinary skill in the art to modify FUMIKO by incorporating the manufacturing method of a SOI wafer as taught by Sakaguchi, with the motivation that defect free SOI wafers can be developed through the analysis of the conductive material or its three dimensional distribution.

Referring to Claim 10, FUMIKO teaches the analysis method of claim 9, but does not teach the manufacturing of a SOI wafer.

However, Sakaguchi teaches in Fig. 2A-C, a manufacturing method of an SOI wafer.

Therefore it would have been obvious to one of ordinary skill in the art to modify FUMIKO by incorporating the manufacturing method of a SOI wafer as taught by Sakaguchi, with the motivation that defect free SOI wafers can be developed through the analysis of the conductive material or its three dimensional distribution.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WHITNEY MOORE whose telephone number is (571)270-3338. The examiner can normally be reached on weekdays, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anh Mai can be reached on 571-272-1995. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WM/ May 7, 2009

/Scott B. Geyer/ Supervisory Patent Examiner, Art Unit 4148